No. 638,838. Patented Dec. 12, 1899.

R. A. FESSENDEN.

PENCIL FOR INCANDESCENT LAMPS.

(Application filed Aug. 25, 1899.)

(No Model.)

FIG. 1.

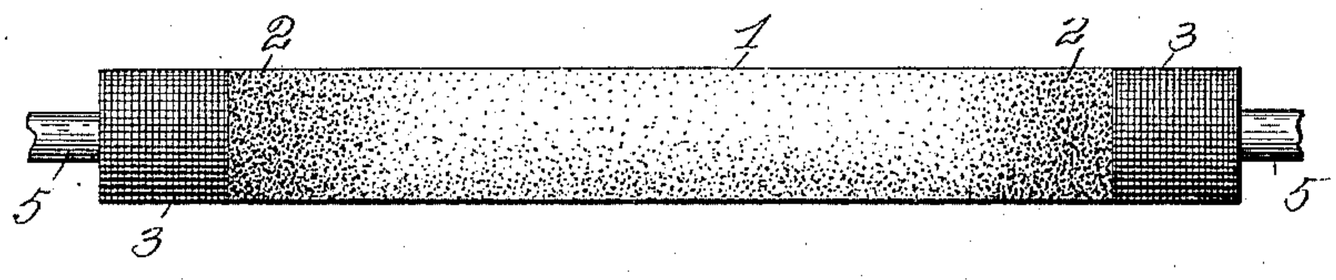
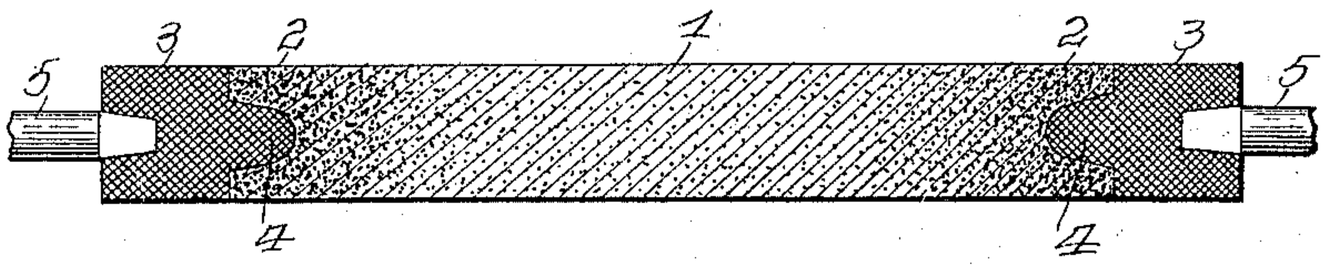


FIG. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

REGINALD A. FESSENDEN, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO GRANT McCARGO, OF PITTSBURG, PENNSYLVANIA.

PENCIL FOR INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 638,838, dated December 12, 1899.

Application filed August 25, 1899. Serial No. 728,420. (No model.)

To all whom it may concern:

Be it known that I, REGINALD A. FESSENDEN, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Pencils for Incandescent Lamps, of which improvements the following is a specification.

In an application filed August 7, 1899, Serial No. 726,395, I have described and claimed certain improvements in pencils for incandescent lamps. As stated in said application, these pencils are formed of a material which is a non-conductor at ordinary temperatures, but becomes conductive when heated, its conductivity increasing proportionally to increases in temperature. When raised to incandescence, the heat is so great as to be destructive of the pencil-terminals unless formed of a material, as platinum, non-oxidizable at high temperatures. The invention set forth in said application consists, generally stated, in forming the body portion of the pencil of a material conductive only when heated and the end portions formed of a material conductive at a lower temperature than the body portion and having terminals embedded or connected to the end portions, said terminals being formed of a metal oxidizable at high temperatures.

The invention described herein relates to certain further or additional improvements in that class or kind of pencils.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of my improved pencil, and Fig. 2 is a sectional view of the same.

In the practice of my invention the body portion 1 of the pencil is formed of magnesia or kaolin or other material non-conducting at normal temperatures, but becoming conductive when heated, the higher the temperature the greater the conductivity. The end portions 2 of the pencil are formed of a material which will become a good conductor at a lower temperature than that necessary to render the body portion a good conductor. While not limiting myself to such material, I have found that a mixture of magnesia or thoria and the chlorid of magnesium will give good results. It is preferred to so form these end portions that the percentage of the chlorid gradually increases toward the ends of the portions 2, so that the pencils will consist of a body portion of magnesia or other suitable material, and the percentage of magnesia decreases toward the extremities of the pencil, the magnesia being replaced by increasing quantities of the other material, which should preferably be in excess at the ends of the pencil. As the ends become good conductors at relatively-low temperatures, they will not become sufficiently heated as to be destructive of the terminals by the passage of the current necessary to effect the incandescence of the body portion.

The terminals 3 are formed of graphite, which may be made in the form of short rods and connected to the end portions in any suitable manner—as, for example, by forming a boss 4 on one of the parts to be connected, preferably the carbon terminal, and embedding the stud in the other part, preferably the end portions 2, as shown.

If desired, electrical connection between the terminals and the end portions may be made by adding graphite to the material of such end portions in increasing quantities, the ends being entirely of graphite. The graphite terminals may be constructed in any desired manner for connection to the circuit—as, for example, sockets may be formed in the terminals 3 for the reception of rods 5, forming the terminals of the circuit.

I claim herein as my invention—

A pencil for incandescent lamps consisting of a body portion, conductive only when heated, intermediate of portions conductive at a lower temperature than the body portion and provided with terminals formed of graphite, substantially as set forth.

In testimony whereof I have hereunto set my hand.

REGINALD A. FESSENDEN.

Witnesses:
DARWIN S. WOLCOTT,
M. S. MURPHY.